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7 November 2005

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Subject: **East Arques Townhomes**
Results of Environmental Noise Study
CSA Project No. 05-0582

Dear Joe:

As requested, we have conducted an environmental noise study for the project. The purpose of the study is to determine the noise environment at the proposed site, compare the noise environment with applicable standards, and propose mitigation measures as necessary. This report summarizes the results of our study.

NOISE ENVIRONMENT

The project site is located in Sunnyvale on East Arques Avenue and extends back to East Taylor Avenue. The major noise source is vehicle traffic on these streets. Between 25 and 26 October 2005, we conducted two continuous 24-hour noise measurements at the site. The monitor locations were as follows:

1. Approximately 40-feet north from the East Arques Avenue centerline
2. Approximately 25-feet south from the East Taylor Avenue centerline and 65-feet west from the North Britton Avenue centerline

At Location 1, we measured DNL[1] 72 dB; at Location 2, we measured DNL 61 dB.

According to the City of Sunnyvale Traffic Department, the daily peak hour traffic volume along East Arques Avenue will increase from 750[2] cars to approximately 826

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[1] Day-Night Average Sound Level (DNL)–A descriptor established by the U.S. Environmental Protection Agency to represent a 24-hour average noise level with a penalty applied to noise occurring during the nighttime hours (10 p.m. to 7 a.m.) to account for the increased sensitivity of people during sleeping hours.

[2] The current daily traffic volume along East Arques Avenue is 7,500 cars. Peak hour volume is approximately ten percent of the daily volume, which is 750 cars. The estimated peak hour traffic volume between the hours of 4 p.m. and 6 p.m. will be approximately 1,653 cars by the year 2020. Dividing this number results in an estimated peak hour traffic volume of 826 cars.

cars by the year 2020. This corresponds to a noise increase of approximately one decibel. There was no traffic data available for East Taylor Avenue, so we have assumed the same increase. Therefore, the future DNL would be 73 dB at Location 1 and 62 dB at Location 2.

RECOMMENDATIONS

To meet the Building Code DNL 45 dB requirement, it will be necessary for the facades to be sound-rated. The window/exterior door STC[3] ratings needed to meet Code are as follows:

- For the row of homes facing East Arques Avenue, windows in the Unit 3 living rooms require a minimum STC rating of 34
- For the row of homes facing East Arques Avenue, the windows in Unit 1 and 2 living rooms, Unit 2 third bedrooms, and Unit 3 master bedrooms require a minimum STC rating of 31
- Windows in remaining rooms in the first row of units fronting East Arques Avenue and the "end" units in the second through fourth rows require a minimum STC rating of 28
- All windows in the first row of units fronting East Taylor Avenue require a minimum rating of STC 28
- Units not listed do not require sound-rated windows

Typical construction-grade dual-pane windows achieve an STC rating of 28. It is important to note that the STC ratings are for full window assemblies (glass and frame) rather than just the glass itself. Tested sound-rated assemblies should be used. If non-tested assemblies were to be used, the STC rating of the glass may need to be increased.

The building code requires that where windows need to be closed to achieve an indoor DNL of 45 dB, an alternative method of supplying fresh air (e.g., mechanical ventilation) must be provided. This is required for units listed above that need sound-rated windows.

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[3] Sound Transmission Class (STC) — A single-figure rating standardized by ASTM and used to rate the sound insulation properties of building partitions. The STC rating is derived from laboratory measurements of a particular building element and as such is representative of the maximum sound insulation. Increasing STC ratings correspond to improved noise isolation.

ATTACHMENT C
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This concludes our environmental noise study for the East Arques Townhomes project. Should you have any questions, please give us a call.

Sincerely,

CHARLES M. SALTER ASSOCIATES, INC.

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Consultant

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Vice President